Safety Data Sheet

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This Safety Data Sheet has been prepared in accordance with the Preparation of Safety Data Sheets for Hazardous Chemicals Code of Practice (Safe Work Australia, December 2011)

SECTION 1: Identification

1.1. Product identifier
3M™ Fluorosurfactant FC-4430

Product Identification Numbers
98-0212-3628-0 98-0212-3629-8 AF-0194-2085-6 UU-0100-7696-4 UU-0100-7697-2 UU-0107-9154-7

1.2. Recommended use and restrictions on use

Recommended use
Industrial use.

For Industrial or Professional use only.

1.3. Supplier's details
Address: 3M Australia - Building A, 1 Rivett Road, North Ryde NSW 2113
Telephone: 136 136
E Mail: productinfo.au@mmm.com
Website: www.3m.com.au

1.4. Emergency telephone number
EMERGENCY: 1800 097 146 (Australia only)

SECTION 2: Hazard identification

This product is classified as a hazardous chemical according to the Model Work Health and Safety Regulations, 2011, in accordance with applicable State and Territory legislation.

Refer to Section 14 of this Safety Data Sheets for product Dangerous Goods Classification.

2.1. Classification of the substance or mixture
Reproductive Toxicity: Category 1.

2.2. Label elements
The label elements below were prepared in accordance with the Code of Practice on Preparation of Safety Data Sheets for Hazardous Chemicals (Safe Work Australia, December 2011). This information may be different from the actual product

label.

Signal word
Danger

Symbols
Health Hazard |

Pictograms

Hazard statements

H360	May damage fertility or the unborn child.

Precautionary statements

Prevention:

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P280F	Wear respiratory protection.

Response:

P308 + P313	IF exposed or concerned: Get medical advice/attention.

Storage:

P405	Store locked up.

Disposal:

P501	Dispose of contents/container in accordance with applicable local/regional/national/international regulations.

2.3. Other assigned/identified product hazards
None known.

2.4. Other hazards which do not result in classification
May be harmful if swallowed.
May be harmful in contact with skin.
Toxic to aquatic life with long lasting effects.

SECTION 3: Composition/information on ingredients

This material is a mixture.

Ingredient	CAS Nbr	% by Weight
2-Propenoic Acid, 2-[Methyl[(Nonafluorobutyl)Sulfonyl]Amino] Ethyl Ester,Telomer With Methyloxirane Polymer With Oxirane Di-2-Propenoate and Methyloxirane Polymer With OxiraneMono-Propenoate	1017237-78-3	85 - 95
Polyether Polymer	Trade Secret	5 - 10

(2-Methoxymethylethoxy)propanol	34590-94-8	0 - 5
1-Butanesulfonamide, 1,1,2,2,3,3,4,4,4-Nonafluoro-N-(2-Hydroxyethyl)-N-Methyl-	34454-97-2	<= 1
1-butanesulphonamide, 1,1,2,2,3,3,4,4,4-nonafluoro-N-methyl-	68298-12-4	< 1
2-Propenoic Acid, 2-[Methyl[(Nonafluorobutyl)Sulfonyl]Amino] Ethyl Ester	67584-55-8	< 1
Toluene	108-88-3	< 1

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation
Remove person to fresh air. If you feel unwell, get medical attention.

Skin contact
Wash with soap and water. If you feel unwell, get medical attention.

Eye contact
Flush with large amounts of water. Remove contact lenses if easy to do. Continue rinsing. If signs/symptoms persist, get medical attention.

If swallowed
Rinse mouth. If you feel unwell, get medical attention.

4.2. Most important symptoms and effects, both acute and delayed

Target organ effects. See Section 11 for additional details. Target organ effects following prolonged or repeated exposure. See Section 11 for additional details.

4.3. Indication of any immediate medical attention and special treatment required
Not applicable

SECTION 5: Fire-fighting measures

5.1. Suitable extinguishing media
In case of fire: Use a fire fighting agent suitable for ordinary combustible material such as water or foam to extinguish. In case of fire: Use a fire fighting agent suitable for water-reactives such as dry chemical to extinguish.

5.2. Special hazards arising from the substance or mixture
Exposure to extreme heat can give rise to thermal decomposition.

Hazardous Decomposition or By-Products

Substance	Condition
Carbonyl fluoride.	During combustion.
Carbon monoxide.	During combustion.
Carbon dioxide.	During combustion.
Hydrogen Fluoride	During combustion.
Toxic vapour, gas, particulate.	During combustion.

5.3. Special protective actions for fire-fighters
Wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head.

Hazchem Code: •3Z

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Evacuate area. Ventilate the area with fresh air. For large spill, or spills in confined spaces, provide mechanical ventilation to disperse or exhaust vapors, in accordance with good industrial hygiene practice. Refer to other sections of this SDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment.

6.2. Environmental precautions
Avoid release to the environment. For larger spills, cover drains and build dykes to prevent entry into sewer systems or bodies of water.

6.3. Methods and material for containment and cleaning up
Contain spill. Working from around the edges of the spill inward, cover with bentonite, vermiculite, or commercially available inorganic absorbent material. Mix in sufficient absorbent until it appears dry. Remember, adding an absorbent material does not remove a physical, health, or environmental hazard. Collect as much of the spilled material as possible. Place in a closed container approved for transportation by appropriate authorities. Clean up residue with water. Seal the container. Dispose of collected material as soon as possible in accordance with applicable local/regional/national/international regulations.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Avoid inhalation of thermal decomposition products. Not intended for use as a medical device or drug. Do not handle until all safety precautions have been read and understood. Do not breathe dust/fume/gas/mist/vapours/spray. Do not get in eyes, on skin, or on clothing. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Avoid release to the environment. Use personal protective equipment (eg. gloves, respirators…) as required.

7.2. Conditions for safe storage including any incompatibilities
No special storage requirements.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits
If a component is disclosed in section 3 but does not appear in the table below, an occupational exposure limit is not available for the component.

Ingredient	CAS Nbr	Agency	Limit type	Additional comments
Toluene	108-88-3	ACGIH	TWA:20 ppm	A4: Not class. as human carcinogen, Ototoxicant
Toluene	108-88-3	Australia OELs	TWA(8 hours):191 mg/m3(50 ppm);STEL(15 minutes):574 mg/m3(150 ppm)	SKIN
1-Butanesulfonamide, 1,1,2,2,3,3,4,4,4-Nonafluoro-N-(2-Hydroxyethyl)-N-Methyl-	34454-97-2	Manufacturer determined	TWA:1 mg/m3(0.07 ppm)	
(2-Methoxymethylethoxy)propanol	34590-94-8	ACGIH	TWA:50 ppm;STEL:100 ppm	
(2-Methoxymethylethoxy)propanol	34590-94-8	Australia OELs	TWA(8 hours):308 mg/m3(50 ppm)	SKIN
1-butanesulphonamide, 1,1,2,2,3,3,4,4,4-nonafluoro-N-methyl-	68298-12-4	Manufacturer determined	TWA:3 mg/m3(0.24 ppm)	

ACGIH : American Conference of Governmental Industrial Hygienists
AIHA : American Industrial Hygiene Association
Australia OELs : Australia. Adopted National Exposure Standards for Atmospheric Contaminants in the Occupational Environment
CMRG : Chemical Manufacturer's Recommended Guidelines
TWA: Time-Weighted-Average
STEL: Short Term Exposure Limit
CEIL: Ceiling
Sen: Sensitiser
Sk: Absorption through the skin may be a significant source of exposure.

8.2. Exposure controls

8.2.1. Engineering controls
For those situations where the material might be exposed to extreme overheating due to misuse or equipment failure, use with appropriate local exhaust ventilation sufficient to maintain levels of thermal decomposition products below their exposure guidelines. Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below relevant Exposure Limits and/or control dust/fume/gas/mist/vapours/spray. If ventilation is not adequate, use respiratory protection equipment.

8.2.2. Personal protective equipment (PPE)

Eye/face protection

Select and use eye/face protection to prevent contact based on the results of an exposure assessment. The following eye/face protection(s) are recommended:
Safety glasses with side shields.

Select and use eye protection in accordance with AS/NZS 1336. Eye protection should comply with the performance specifications of AS/NZS 1337.

Skin/hand protection
Select and use gloves and/or protective clothing approved to relevant local standards to prevent skin contact based on the results of an exposure assessment. Selection should be based on use factors such as exposure levels, concentration of the substance or mixture, frequency and duration, physical challenges such as temperature extremes, and other use conditions. Consult with your glove and/or protective clothing manufacturer for selection of appropriate compatible gloves/protective clothing. Note: Nitrile gloves may be worn over polymer laminate gloves to improve dexterity.
Gloves made from the following material(s) are recommended: Polymer laminate

if this product is used in a manner that presents a higher potential for exposure (eg. spraying, high splash potential etc.), then use of protective coveralls may be necessary. Select and use body protection to prevent contact based on the results of an exposure assessment. The following protective clothing material(s) are recommended: Apron - polymer laminate

Select and use gloves according to AS/NZ 2161.

Respiratory protection

For those situations where the material might be exposed to extreme overheating due to misuse or equipment failure, use a positive pressure supplied-air respirator.
An exposure assessment may be needed to decide if a respirator is required. If a respirator is needed, use respirators as part of a full respiratory protection program. Based on the results of the exposure assessment, select from the following respirator type(s) to reduce inhalation exposure:
Half facepiece or full facepiece air-purifying respirator suitable for organic vapours and particulates

For questions about suitability for a specific application, consult with your respirator manufacturer.
Select and use respirators according to AS/NZS 1715. Respirators should comply with AS/NZS 1716 performance specifications. For information about respirators, call 3M on 1800 024 464.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Liquid.
Specific Physical Form:	Viscous. liquid
Colour	Amber
Odour	Mercaptan
Odour threshold	*No data available.*
pH	*Not applicable.*
Melting point/Freezing point	*Not applicable.*
Boiling point/Initial boiling point/Boiling range	>=200 ºC
Flash point	Flash point > 93 °C (200 °F)
Evaporation rate	*No data available.*
Flammability (solid, gas)	Not applicable.
Flammable Limits(LEL)	*No data available.*
Flammable Limits(UEL)	*No data available.*
Vapour pressure	<=38.7 Pa [@ 20 ºC]
Vapor Density and/or Relative Vapor Density	5.7 [@ 20 ºC] [*Ref Std:*AIR=1]
Density	1.15 g/ml
Relative density	1.15 [*Ref Std:*WATER=1]
Water solubility	Complete
Solubility- non-water	*No data available.*
Partition coefficient: n-octanol/water	*No data available.*
Autoignition temperature	*Not applicable.*
Decomposition temperature	*No data available.*
Viscosity/Kinematic Viscosity	2,000 mPa-s - 10,000 mPa-s
Volatile organic compounds (VOC)	34.5 g/l [*Test Method:*calculated SCAQMD rule 443.1]
Percent volatile	<=3 %
VOC less H2O & exempt solvents	*No data available.*
Molecular weight	*No data available.*

SECTION 10: Stability and reactivity

10.1 Reactivity
This material is considered to be non reactive under normal use conditions

10.2 Chemical stability
Stable.

10.3. Conditions to avoid
None known.

10.4. Possibility of hazardous reactions
Hazardous polymerisation will not occur.

10.5 Incompatible materials
None known.

10.6 Hazardous decomposition products

Substance	**Condition**
None known.	

Dust created by grinding, sanding, or machining may cause eye irritation. Signs/symptoms may include redness, swelling, pain, tearing, and blurred or hazy vision.

SECTION 11: Toxicological information

The information below may not be consistent with the material classification in Section 2 if specific ingredient classifications are mandated by a competent authority. In addition, toxicological data on ingredients may not be reflected in the material classification and/or the signs and symptoms of exposure, because an ingredient may be present below the threshold for labelling, an ingredient may not be available for exposure, or the data may not be relevant to the material as a whole.

11.1 Information on Toxicological effects

Signs and Symptoms of Exposure

Based on test data and/or information on the components, this material may produce the following health effects:

Inhalation
May cause additional health effects (see below).

Skin contact
May be harmful in contact with skin.

Eye contact
No known health effects.

Ingestion
May be harmful if swallowed.
Gastrointestinal irritation: Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhoea.
May cause additional health effects (see below).

Additional Health Effects:

Single exposure may cause target organ effects:
Neurological effects: Signs/symptoms may include personality changes, lack of coordination, sensory loss, tingling or numbness of the extremities, weakness, tremors, and changes in blood pressure and heart rate.

Prolonged or repeated exposure may cause target organ effects:
Liver effects: Signs/symptoms may include loss of appetite, weight loss, fatigue, weakness, abdominal tenderness and jaundice.

Reproductive/Developmental Toxicity:
Contains a chemical or chemicals which can cause birth defects or other reproductive harm.

Toxicological Data
If a component is disclosed in section 3 but does not appear in a table below, either no data are available for that endpoint or the data are not sufficient for classification.

Acute Toxicity

Name	Route	Species	Value
Overall product	Dermal		No data available; calculated ATE >2,000 - =5,000 mg/kg
Overall product	Ingestion		No data available; calculated ATE >2,000 - =5,000 mg/kg
2-Propenoic Acid, 2-	Dermal	Rat	LD50 > 2,000 mg/kg

[Methyl[(Nonafluorobutyl)Sulfonyl] Amino]Ethyl Ester,Telomer With Methyloxirane Polymer With Oxirane Di-2-Propenoate and Methyloxirane Polymer With OxiraneMono-Propenoate			
2-Propenoic Acid, 2-[Methyl[(Nonafluorobutyl)Sulfonyl] Amino]Ethyl Ester,Telomer With Methyloxirane Polymer With Oxirane Di-2-Propenoate and Methyloxirane Polymer With OxiraneMono-Propenoate	Ingestion	Rat	LD50 > 2,000 mg/kg
Polyether Polymer	Dermal	Professional judgement	LD50 estimated to be > 5,000 mg/kg
Polyether Polymer	Ingestion	Rat	LD50 5,700 mg/kg
(2-Methoxymethylethoxy)propanol	Dermal	Rabbit	LD50 > 19,000 mg/kg
(2-Methoxymethylethoxy)propanol	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 50 mg/l
(2-Methoxymethylethoxy)propanol	Ingestion	Rat	LD50 5,180 mg/kg
Toluene	Dermal	Rat	LD50 12,000 mg/kg
Toluene	Inhalation-Vapour (4 hours)	Rat	LC50 30 mg/l
Toluene	Ingestion	Rat	LD50 5,550 mg/kg
1-Butanesulfonamide, 1,1,2,2,3,3,4,4,4-Nonafluoro-N-(2-Hydroxyethyl)-N-Methyl-	Dermal	Rat	LD50 > 2,000 mg/kg
1-Butanesulfonamide, 1,1,2,2,3,3,4,4,4-Nonafluoro-N-(2-Hydroxyethyl)-N-Methyl-	Ingestion	Rat	LD50 > 2,000 mg/kg
1-butanesulphonamide, 1,1,2,2,3,3,4,4,4-nonafluoro-N-methyl-	Ingestion	Rat	LD50 200-2000 mg/kg
2-Propenoic Acid, 2-[Methyl[(Nonafluorobutyl)Sulfonyl] Amino]Ethyl Ester	Dermal	Rat	LD50 > 2,000 mg/kg
2-Propenoic Acid, 2-[Methyl[(Nonafluorobutyl)Sulfonyl] Amino]Ethyl Ester	Ingestion	Rat	LD50 > 2,000 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
(2-Methoxymethylethoxy)propanol	Human and animal	No significant irritation
Toluene	Rabbit	Irritant
1-Butanesulfonamide, 1,1,2,2,3,3,4,4,4-Nonafluoro-N-(2-Hydroxyethyl)-N-Methyl-	Rabbit	No significant irritation
1-butanesulphonamide, 1,1,2,2,3,3,4,4,4-nonafluoro-N-methyl-	Rabbit	No significant irritation
2-Propenoic Acid, 2-[Methyl[(Nonafluorobutyl)Sulfonyl]Amino]Ethyl Ester	Rabbit	No significant irritation

Serious Eye Damage/Irritation

Name	Species	Value
(2-Methoxymethylethoxy)propanol	Rabbit	Mild irritant
Toluene	Rabbit	Moderate irritant

1-Butanesulfonamide, 1,1,2,2,3,3,4,4,4-Nonafluoro-N-(2-Hydroxyethyl)-N-Methyl-	Rabbit	Mild irritant
1-butanesulphonamide, 1,1,2,2,3,3,4,4,4-nonafluoro-N-methyl-	Rabbit	Severe irritant
2-Propenoic Acid, 2-[Methyl[(Nonafluorobutyl)Sulfonyl]Amino]Ethyl Ester	Rabbit	Mild irritant

Skin Sensitisation

Name	Species	Value
2-Propenoic Acid, 2-[Methyl[(Nonafluorobutyl)Sulfonyl]Amino]Ethyl Ester,Telomer With Methyloxirane Polymer With Oxirane Di-2-Propenoate and Methyloxirane Polymer With OxiraneMono-Propenoate	Guinea pig	Not classified
(2-Methoxymethylethoxy)propanol	Human	Not classified
Toluene	Guinea pig	Not classified
1-Butanesulfonamide, 1,1,2,2,3,3,4,4,4-Nonafluoro-N-(2-Hydroxyethyl)-N-Methyl-	Guinea pig	Not classified
1-butanesulphonamide, 1,1,2,2,3,3,4,4,4-nonafluoro-N-methyl-	Guinea pig	Not classified
2-Propenoic Acid, 2-[Methyl[(Nonafluorobutyl)Sulfonyl]Amino]Ethyl Ester	Guinea pig	Sensitising

Respiratory Sensitisation

For the component/components, either no data are currently available or the data are not sufficient for classification.

Germ Cell Mutagenicity

Name	Route	Value
2-Propenoic Acid, 2-[Methyl[(Nonafluorobutyl)Sulfonyl]Amino]Ethyl Ester,Telomer With Methyloxirane Polymer With Oxirane Di-2-Propenoate and Methyloxirane Polymer With OxiraneMono-Propenoate	In Vitro	Not mutagenic
(2-Methoxymethylethoxy)propanol	In Vitro	Not mutagenic
Toluene	In Vitro	Not mutagenic
Toluene	In vivo	Not mutagenic
1-Butanesulfonamide, 1,1,2,2,3,3,4,4,4-Nonafluoro-N-(2-Hydroxyethyl)-N-Methyl-	In Vitro	Not mutagenic
1-butanesulphonamide, 1,1,2,2,3,3,4,4,4-nonafluoro-N-methyl-	In Vitro	Not mutagenic
2-Propenoic Acid, 2-[Methyl[(Nonafluorobutyl)Sulfonyl]Amino]Ethyl Ester	In Vitro	Not mutagenic

Carcinogenicity

Name	Route	Species	Value
Toluene	Dermal	Mouse	Some positive data exist, but the data are not sufficient for classification
Toluene	Ingestion	Rat	Some positive data exist, but the data are not sufficient for classification
Toluene	Inhalation	Mouse	Some positive data exist, but the data are not sufficient for classification

Reproductive Toxicity

Reproductive and/or Developmental Effects

Name	Route	Value	Species	Test result	Exposure Duration
(2-Methoxymethylethoxy)propanol	Inhalation	Not classified for development	Multiple animal species	NOAEL 1.82 mg/l	during organogenesis
Toluene	Inhalation	Not classified for female reproduction	Human	NOAEL Not available	occupational exposure
Toluene	Inhalation	Not classified for male reproduction	Rat	NOAEL 2.3 mg/l	1 generation
Toluene	Ingestion	Toxic to development	Rat	LOAEL 520 mg/kg/day	during gestation
Toluene	Inhalation	Toxic to development	Human	NOAEL Not available	poisoning and/or abuse
1-Butanesulfonamide, 1,1,2,2,3,3,4,4,4-Nonafluoro-N-(2-Hydroxyethyl)-N-Methyl-	Ingestion	Not classified for female reproduction	Rat	NOAEL 250 mg/kg/day	premating & during gestation
1-Butanesulfonamide, 1,1,2,2,3,3,4,4,4-Nonafluoro-N-(2-Hydroxyethyl)-N-Methyl-	Ingestion	Not classified for male reproduction	Rat	NOAEL 250 mg/kg/day	premating & during gestation
1-Butanesulfonamide, 1,1,2,2,3,3,4,4,4-Nonafluoro-N-(2-Hydroxyethyl)-N-Methyl-	Ingestion	Toxic to development	Rat	NOAEL 50 mg/kg/day	premating & during gestation
1-butanesulphonamide, 1,1,2,2,3,3,4,4,4-nonafluoro-N-methyl-	Ingestion	Toxic to female reproduction	Rat	NOAEL 150 mg/kg/day	premating & during gestation
1-butanesulphonamide, 1,1,2,2,3,3,4,4,4-nonafluoro-N-methyl-	Ingestion	Toxic to male reproduction	Rat	NOAEL 150 mg/kg/day	28 days
1-butanesulphonamide, 1,1,2,2,3,3,4,4,4-nonafluoro-N-methyl-	Ingestion	Toxic to development	Rat	NOAEL 150 mg/kg/day	premating & during gestation
2-Propenoic Acid, 2-[Methyl[(Nonafluorobutyl)Sulfonyl]Amino]Ethyl Ester	Ingestion	Not classified for development	Rat	NOAEL 100 mg/kg/day	during gestation

Target Organ(s)

Specific Target Organ Toxicity - single exposure

Name	Route	Target Organ(s)	Value	Species	Test result	Exposure Duration
(2-Methoxymethylethoxy)prop	Dermal	central nervous system depression	Not classified	Rabbit	NOAEL 2,850 mg/kg	

anol						
(2-Methoxymethylethoxy)propanol	Inhalation	central nervous system depression	Not classified	Rat	LOAEL 3.07 mg/l	7 hours
(2-Methoxymethylethoxy)propanol	Ingestion	central nervous system depression	Not classified	Rat	LOAEL 5,000 mg/kg	
Toluene	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	
Toluene	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	Human	NOAEL Not available	
Toluene	Inhalation	immune system	Not classified	Mouse	NOAEL 0.004 mg/l	3 hours
Toluene	Ingestion	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	poisoning and/or abuse
1-Butanesulfonamide, 1,1,2,2,3,3,4,4,4-Nonafluoro-N-(2-Hydroxyethyl)-N-Methyl-	Ingestion	nervous system	May cause damage to organs	Rat	LOAEL 2,000 mg/kg	not applicable
1-butanesulphonamide, 1,1,2,2,3,3,4,4,4-nonafluoro-N-methyl-	Ingestion	nervous system	Not classified	Rat	NOAEL 200 mg/kg	not applicable

Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test result	Exposure Duration
2-Propenoic Acid, 2-[Methyl[(Nonafluorobutyl)Sulfonyl]Amino]Ethyl Ester,Telomer With Methyloxirane Polymer With Oxirane Di-2-Propenoate and Methyloxirane Polymer With OxiraneMono-Propenoate	Ingestion	heart | endocrine system | hematopoietic system | liver | immune system | nervous system | kidney and/or bladder | respiratory system	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
(2-	Dermal	kidney and/or	Not classified	Rabbit	NOAEL 9,500	90 days

Methoxymethylethoxy)propanol		bladder | heart | endocrine system | hematopoietic system | liver | respiratory system			mg/kg/day	
(2-Methoxymethylethoxy)propanol	Inhalation	heart | hematopoietic system | liver | immune system | nervous system | eyes | kidney and/or bladder	Not classified	Rat	NOAEL 1.21 mg/l	90 days
(2-Methoxymethylethoxy)propanol	Ingestion	liver | heart | endocrine system | bone, teeth, nails, and/or hair | hematopoietic system | immune system | nervous system | kidney and/or bladder | respiratory system	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
Toluene	Inhalation	auditory system | eyes | olfactory system	Causes damage to organs through prolonged or repeated exposure	Human	NOAEL Not available	poisoning and/or abuse
Toluene	Inhalation	nervous system	May cause damage to organs though prolonged or repeated exposure	Human	NOAEL Not available	poisoning and/or abuse
Toluene	Inhalation	respiratory system	Some positive data exist, but the data are not sufficient for classification	Rat	LOAEL 2.3 mg/l	15 months
Toluene	Inhalation	heart | liver | kidney and/or bladder	Not classified	Rat	NOAEL 11.3 mg/l	15 weeks
Toluene	Inhalation	endocrine system	Not classified	Rat	NOAEL 1.1 mg/l	4 weeks
Toluene	Inhalation	immune system	Not classified	Mouse	NOAEL Not available	20 days
Toluene	Inhalation	bone, teeth, nails, and/or hair	Not classified	Mouse	NOAEL 1.1 mg/l	8 weeks
Toluene	Inhalation	hematopoietic system | vascular system	Not classified	Human	NOAEL Not available	occupational exposure
Toluene	Inhalation	gastrointestinal tract	Not classified	Multiple animal species	NOAEL 11.3 mg/l	15 weeks
Toluene	Ingestion	nervous system	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 625 mg/kg/day	13 weeks
Toluene	Ingestion	heart	Not classified	Rat	NOAEL 2,500	13 weeks

					mg/kg/day	
Toluene	Ingestion	liver | kidney and/or bladder	Not classified	Multiple animal species	NOAEL 2,500 mg/kg/day	13 weeks
Toluene	Ingestion	hematopoietic system	Not classified	Mouse	NOAEL 600 mg/kg/day	14 days
Toluene	Ingestion	endocrine system	Not classified	Mouse	NOAEL 105 mg/kg/day	28 days
Toluene	Ingestion	immune system	Not classified	Mouse	NOAEL 105 mg/kg/day	4 weeks
1-Butanesulfonamide, 1,1,2,2,3,3,4,4,4-Nonafluoro-N-(2-Hydroxyethyl)-N-Methyl-	Ingestion	liver	May cause damage to organs though prolonged or repeated exposure	Rat	NOAEL 50 mg/kg/day	28 days
1-Butanesulfonamide, 1,1,2,2,3,3,4,4,4-Nonafluoro-N-(2-Hydroxyethyl)-N-Methyl-	Ingestion	immune system	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 50 mg/kg/day	28 days
1-Butanesulfonamide, 1,1,2,2,3,3,4,4,4-Nonafluoro-N-(2-Hydroxyethyl)-N-Methyl-	Ingestion	kidney and/or bladder | heart | endocrine system | hematopoietic system | nervous system | respiratory system	Not classified	Rat	NOAEL 250 mg/kg/day	28 days
1-butanesulphonamide, 1,1,2,2,3,3,4,4,4-nonafluoro-N-methyl-	Ingestion	nervous system	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 150 mg/kg/day	premating & during gestation
1-butanesulphonamide, 1,1,2,2,3,3,4,4,4-nonafluoro-N-methyl-	Ingestion	hematopoietic system | liver | immune system | heart | endocrine system | kidney and/or bladder | respiratory system	Not classified	Rat	NOAEL 1,000 mg/kg/day	premating & during gestation
2-Propenoic Acid, 2-[Methyl[(Nonafluorobutyl)Sulfonyl]Amino]Ethyl Ester	Ingestion	liver | kidney and/or bladder	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 100 mg/kg/day	
2-Propenoic Acid, 2-[Methyl[(Nonafluorobutyl)S	Ingestion	endocrine system | gastrointestinal tract |	Not classified	Rat	NOAEL 600 mg/kg/day	

ulfonyl]Amino]Ethyl Ester		hematopoietic system | immune system | heart | bone, teeth, nails, and/or hair | nervous system | eyes | respiratory system | vascular system				

Aspiration Hazard

Name	Value
Toluene	Aspiration hazard

Exposure Levels
Refer Section **8.1 Control Parameters** of this Safety Data Sheet.

Interactive Effects
Not determined.

SECTION 12: Ecological information

The information below may not be consistent with the material classification in Section 2 if specific ingredient classifications are mandated by a competent authority. Additional information leading to material classification in Section 2 is available upon request. In addition, environmental fate and effects data on ingredients may not be reflected in this section because an ingredient is present below the threshold for labelling, an ingredient is not expected to be available for exposure, or the data is considered not relevant to the material as a whole.

12.1. Toxicity

Acute aquatic hazard:
GHS Acute 2: Toxic to aquatic life.

Chronic aquatic hazard:
GHS Chronic 2: Toxic to aquatic life with long lasting effects.

No product test data available.

Material	CAS Number	Organism	Type	Exposure	Test endpoint	Test result
2-Propenoic Acid, 2-[Methyl[(Nonafluorobutyl)Sulfonyl]Amino]Ethyl Ester,Telomer With Methyloxirane Polymer With Oxirane Di-2-Propenoate and Methyloxirane Polymer With OxiraneMono-	1017237-78-3	Activated sludge	Experimental	3 hours	EC50	786.2 mg/l

Propenoate						
2-Propenoic Acid, 2-[Methyl[(Nonafluorobutyl)Sulfonyl]Amino]Ethyl Ester,Telomer With Methyloxirane Polymer With Oxirane Di-2-Propenoate and Methyloxirane Polymer With OxiraneMono-Propenoate	1017237-78-3	Copepod	Experimental	48 hours	EC50	132 mg/l
2-Propenoic Acid, 2-[Methyl[(Nonafluorobutyl)Sulfonyl]Amino]Ethyl Ester,Telomer With Methyloxirane Polymer With Oxirane Di-2-Propenoate and Methyloxirane Polymer With OxiraneMono-Propenoate	1017237-78-3	Diatom	Experimental	72 hours	EC50	3.24 mg/l
2-Propenoic Acid, 2-[Methyl[(Nonafluorobutyl)Sulfonyl]Amino]Ethyl Ester,Telomer With Methyloxirane Polymer With Oxirane Di-2-Propenoate and Methyloxirane Polymer With OxiraneMono-Propenoate	1017237-78-3	Fathead minnow	Experimental	96 hours	LC50	765 mg/l
2-Propenoic Acid, 2-[Methyl[(Nonafluorobutyl)Sulfonyl]Amino]Ethyl	1017237-78-3	Fish	Experimental	96 hours	LC50	>3.2 mg/l

Ester,Telomer With Methyloxirane Polymer With Oxirane Di-2-Propenoate and Methyloxirane Polymer With OxiraneMono-Propenoate						
2-Propenoic Acid, 2-[Methyl[(Nonafluorobutyl)Sulfonyl]Amino]Ethyl Ester,Telomer With Methyloxirane Polymer With Oxirane Di-2-Propenoate and Methyloxirane Polymer With OxiraneMono-Propenoate	1017237-78-3	Green algae	Experimental	72 hours	EC50	>1,000 mg/l
2-Propenoic Acid, 2-[Methyl[(Nonafluorobutyl)Sulfonyl]Amino]Ethyl Ester,Telomer With Methyloxirane Polymer With Oxirane Di-2-Propenoate and Methyloxirane Polymer With OxiraneMono-Propenoate	1017237-78-3	Water flea	Experimental	48 hours	EC50	99 mg/l
Polyether Polymer	Trade Secret		Data not available or insufficient for classification			N/A
(2-Methoxymethylethoxy)propanol	34590-94-8	Bacteria	Experimental	18 hours	EC10	4,168 mg/l
(2-Methoxymethylethoxy)propanol	34590-94-8	Fathead minnow	Experimental	96 hours	LC50	>10,000 mg/l
(2-	34590-94-8	Green algae	Experimental	72 hours	EC50	>969 mg/l

Methoxymethylethoxy)propanol						
(2-Methoxymethylethoxy)propanol	34590-94-8	Water flea	Experimental	48 hours	LC50	1,919 mg/l
(2-Methoxymethylethoxy)propanol	34590-94-8	Green algae	Experimental	72 hours	EC10	133 mg/l
1-Butanesulfonamide, 1,1,2,2,3,3,4,4,4-Nonafluoro-N-(2-Hydroxyethyl)-N-Methyl-	34454-97-2	Activated sludge	Experimental	3 hours	EC50	>1,000 mg/l
1-Butanesulfonamide, 1,1,2,2,3,3,4,4,4-Nonafluoro-N-(2-Hydroxyethyl)-N-Methyl-	34454-97-2	Fathead minnow	Experimental	96 hours	LC50	25 mg/l
1-Butanesulfonamide, 1,1,2,2,3,3,4,4,4-Nonafluoro-N-(2-Hydroxyethyl)-N-Methyl-	34454-97-2	Green algae	Experimental	72 hours	EC50	79 mg/l
1-Butanesulfonamide, 1,1,2,2,3,3,4,4,4-Nonafluoro-N-(2-Hydroxyethyl)-N-Methyl-	34454-97-2	Invertebrate	Experimental	96 hours	EC50	4.4 mg/l
1-Butanesulfonamide, 1,1,2,2,3,3,4,4,4-Nonafluoro-N-(2-Hydroxyethyl)-N-Methyl-	34454-97-2	Green algae	Experimental	72 hours	NOEC	21 mg/l
1-butanesulphonamide, 1,1,2,2,3,3,4,4,	68298-12-4	Fathead minnow	Experimental	96 hours	LC50	44 mg/l

4-nonafluoro-N-methyl-						
1-butanesulphonamide, 1,1,2,2,3,3,4,4,4-nonafluoro-N-methyl-	68298-12-4	Green algae	Experimental	96 hours	ErC50	13 mg/l
1-butanesulphonamide, 1,1,2,2,3,3,4,4,4-nonafluoro-N-methyl-	68298-12-4	Mysid Shrimp	Experimental	96 hours	EC50	2.4 mg/l
1-butanesulphonamide, 1,1,2,2,3,3,4,4,4-nonafluoro-N-methyl-	68298-12-4	Water flea	Experimental	48 hours	EC50	17 mg/l
1-butanesulphonamide, 1,1,2,2,3,3,4,4,4-nonafluoro-N-methyl-	68298-12-4	Green algae	Experimental	96 hours	NOEC	1.9 mg/l
1-butanesulphonamide, 1,1,2,2,3,3,4,4,4-nonafluoro-N-methyl-	68298-12-4	Activated sludge	Experimental	3 hours	EC50	>1,000 mg/l
2-Propenoic Acid, 2-[Methyl[(Nonafluorobutyl)Sulfonyl]Amino]Ethyl Ester	67584-55-8	Activated sludge	Experimental	3 hours	EC50	>1,000 mg/l
2-Propenoic Acid, 2-[Methyl[(Nonafluorobutyl)Sulfonyl]Amino]Ethyl Ester	67584-55-8	Water flea	Experimental	48 hours	EC50	1.2 mg/l
2-Propenoic Acid, 2-[Methyl[(Nonafluorobutyl)Sulfonyl]Amino]Ethyl Ester	67584-55-8	Green algae	Experimental	72 hours	NOEC	0.34 mg/l
Toluene	108-88-3	Coho Salmon	Experimental	96 hours	LC50	5.5 mg/l
Toluene	108-88-3	Grass Shrimp	Experimental	96 hours	LC50	9.5 mg/l
Toluene	108-88-3	Green algae	Experimental	72 hours	EC50	12.5 mg/l
Toluene	108-88-3	Leopard frog	Experimental	9 days	LC50	0.39 mg/l
Toluene	108-88-3	Pink Salmon	Experimental	96 hours	LC50	6.41 mg/l

Toluene	108-88-3	Water flea	Experimental	48 hours	EC50	3.78 mg/l
Toluene	108-88-3	Coho Salmon	Experimental	40 days	NOEC	1.39 mg/l
Toluene	108-88-3	Diatom	Experimental	72 hours	NOEC	10 mg/l
Toluene	108-88-3	Water flea	Experimental	7 days	NOEC	0.74 mg/l
Toluene	108-88-3	Activated sludge	Experimental	12 hours	IC50	292 mg/l
Toluene	108-88-3	Bacteria	Experimental	16 hours	NOEC	29 mg/l
Toluene	108-88-3	Bacteria	Experimental	24 hours	EC50	84 mg/l
Toluene	108-88-3	Redworm	Experimental	28 days	LC50	>150 mg per kg of bodyweight
Toluene	108-88-3	Soil microbes	Experimental	28 days	NOEC	<26 mg/kg (Dry Weight)

12.2. Persistence and degradability

Material	CAS Number	Test type	Duration	Study Type	Test result	Protocol
2-Propenoic Acid, 2-[Methyl[(Nonafluorobutyl)Sulfonyl]Amino]Ethyl Ester,Telomer With Methyloxirane Polymer With Oxirane Di-2-Propenoate and Methyloxirane Polymer With OxiraneMono-Propenoate	1017237-78-3	Experimental Hydrolysis		Hydrolytic half-life	48.5 years (t 1/2)	Non-standard method
2-Propenoic Acid, 2-[Methyl[(Nonafluorobutyl)Sulfonyl]Amino]Ethyl Ester,Telomer With Methyloxirane Polymer With Oxirane Di-2-Propenoate and Methyloxirane Polymer With OxiraneMono-Propenoate	1017237-78-3	Experimental Biodegradation	28 days	BOD	3 % weight	OECD 301D - Closed bottle test
Polyether Polymer	Trade Secret	Data not available-insufficient	N/A	N/A	N/A	N/A
(2-Methoxymethylethoxy)propanol	34590-94-8	Experimental Biodegradation	28 days	BOD	75 %BOD/ThBOD	OECD 301F - Manometric respirometry

1-Butanesulfonamide, 1,1,2,2,3,3,4,4,4-Nonafluoro-N-(2-Hydroxyethyl)-N-Methyl-	34454-97-2	Experimental Biodegradation	28 days	CO2 evolution	2 % weight	OECD 301B - Modified sturm or CO2
2-Propenoic Acid, 2-[Methyl[(Nonafluorobutyl)Sulfonyl]Amino]Ethyl Ester	67584-55-8	Experimental Hydrolysis		Hydrolytic half-life	0.6 years (t 1/2)	Non-standard method
2-Propenoic Acid, 2-[Methyl[(Nonafluorobutyl)Sulfonyl]Amino]Ethyl Ester	67584-55-8	Experimental Aquatic Biodegrad. - Aerobic	28 days	% CO2 produced	2 % weight	OECD 301B - Modified sturm or CO2
Toluene	108-88-3	Experimental Photolysis		Photolytic half-life (in air)	5.2 days (t 1/2)	
Toluene	108-88-3	Experimental Biodegradation	20 days	BOD	80 %BOD/ThBOD	APHA Std Meth Water/Wastewater

12.3 : Bioaccumulative potential

Material	CAS Number	Test type	Duration	Study Type	Test result	Protocol
2-Propenoic Acid, 2-[Methyl[(Nonafluorobutyl)Sulfonyl]Amino]Ethyl Ester,Telomer With Methyloxirane Polymer With Oxirane Di-2-Propenoate and Methyloxirane Polymer With OxiraneMono-Propenoate	1017237-78-3	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Polyether Polymer	Trade Secret	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
(2-Methoxymethylethoxy)propanol	34590-94-8	Experimental Bioconcentration		Log Kow	0.0061	Non-standard method
1-Butanesulfonamide,	34454-97-2	Estimated Bioconcentration		Log Kow	2.83	Estimated: Bioconcentration factor

1,1,2,2,3,3,4,4,4-Nonafluoro-N-(2-Hydroxyethyl)-N-Methyl-						
1-butanesulphonamide, 1,1,2,2,3,3,4,4,4-nonafluoro-N-methyl-	68298-12-4	Modeled Bioconcentration		Bioaccumulation factor	370	Catalogic™
1-butanesulphonamide, 1,1,2,2,3,3,4,4,4-nonafluoro-N-methyl-	68298-12-4	Modeled Bioconcentration		Log Kow	3.59	Episuite™
2-Propenoic Acid, 2-[Methyl[(Nonafluorobutyl)Sulfonyl]Amino]Ethyl Ester	67584-55-8	Estimated Bioconcentration		Bioaccumulation factor	5	Non-standard method
Toluene	108-88-3	Experimental BCF - Other	72 hours	Bioaccumulation factor	90	
Toluene	108-88-3	Experimental Bioconcentration		Log Kow	2.73	

12.4. Mobility in soil
Please contact manufacturer for more details

12.5 Other adverse effects
No information available.

SECTION 13: Disposal considerations

13.1. Disposal methods
Dispose of contents/ container in accordance with the local/regional/national/international regulations.

Incinerate in a permitted waste incineration facility. Proper destruction may require the use of additional fuel during incineration processes. As a disposal alternative, utilize an acceptable permitted waste disposal facility. Combustion products will include HF. Facility must be capable of handling halogenated materials.

SECTION 14: Transport Information

Product identification numbers: 98021236280; UU010076972

Australian Dangerous Goods Code (ADG) - Road/Rail Transport
UN No.: UN3082
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. , (Fluoroacrylate Copolymer)
Class/Division: 9
Sub Risk: Not applicable.

Packing Group: III
Special Instructions: Not restricted, environmentally hazardous substance exception.
Hazchem Code: •3Z
IERG: 47

International Air Transport Association (IATA) - Air Transport
UN No.: UN3082
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. , (Fluoroacrylate Copolymer)
Class/Division: 9
Sub Risk: Not applicable.
Packing Group: III
Special Instructions: Not restricted, as per special provision A197, ENVIRONMENTALLY HAZARDOUS SUBSTANCE EXCEPTION may apply.

International Maritime Dangerous Goods Code (IMDG)- Marine Transport
UN No.: UN3082
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. , (Fluoroacrylate Copolymer)
Class/Division: 9
Sub Risk: Not applicable.
Packing Group: III
Marine Pollutant: Fluoroacrylate Copolymer
Special Instructions: Not restricted, as per IMDG CODE 2.10.2.7, MARINE POLLUTANT EXCEPTION, may apply.

Product identification numbers: AF019420856; 98021236298; ; UU010076964

Australian Dangerous Goods Code (ADG) - Road/Rail Transport
UN No.: UN3082
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. , (Fluoroacrylate Copolymer)
Class/Division: 9
Sub Risk: Not applicable.
Packing Group: III

Hazchem Code: -3Z
IERG: 47

International Air Transport Association (IATA)- Air Transport
UN No.: UN3082
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. , (Fluoroacrylate Copolymer)
Class/Division: 9
Sub Risk: Not applicable.
Packing Group: III

International Maritime Dangerous Goods Code (IMDG)- Marine Transport
UN No.: UN3082
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. , (Fluoroacrylate Copolymer)
Class/Division: 9
Sub Risk: Not applicable.
Packing Group: III
Marine Pollutant: Fluoroacrylate Copolymer

Product identification numbers: UU010791547

Australian Dangerous Goods Code (ADG) - Road/Rail Transport
UN No.: UN3082
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. , (Fluoroacrylate Copolymer)
Class/Division: 9
Sub Risk: Not applicable.
Packing Group: III

Hazchem Code: -3Z
IERG: 47

International Air Transport Association (IATA)- Air Transport
UN No.: UN3082
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. , (Fluoroacrylate Copolymer)
Class/Division: 9
Sub Risk: Not applicable.
Packing Group: III
Special Instructions: Forbidden 3M US Air Policy - Pacakge size exceeds the 3M allowable amount

International Maritime Dangerous Goods Code (IMDG)- Marine Transport
UN No.: UN3082
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. , (Fluoroacrylate Copolymer)
Class/Division: 9
Sub Risk: Not applicable.
Packing Group: III
Marine Pollutant: Fluoroacrylate Copolymer

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Australian Inventory Status:
All components of this product are listed on or exempt from the Australian Inventory of Industrial Chemicals (AIIC). Conditions may apply prior to introduction for direct importers of this product, Please contact 3M Australia on 136 136 for further details.

Poison Schedule: This product is intended for Industrial or Professional Use only and therefore is not packaged and labelled in accordance with the requirements of the Standard for the Uniform Scheduling of Medicines and Poisons.

SECTION 16: Other information

Revision information:
Complete document review.

DISCLAIMER: The information on this Safety Data Sheet is based on our experience and is correct to the best of our knowledge at the date of publication, but we do not accept any liability for any loss, damage or injury resulting from its use (except as required by law). The information may not be valid for any use not referred to in this Safety Data Sheet or use of the product in combination with other materials. For these reasons, it is important that customers carry out their own test to satisfy themselves as to the suitability of the product for their own intended applications.
Greenguard ® is a United States based program. The ‘Low VOC’ reference related to United States Federal and State regulations exemptions for some solvents.

3M Australia SDSs are available at www.3m.com.au